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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Joseph Smallcomb

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08/02/2006

Akerman, Senterfitt & Eidson, P.A.

Post Office Box 3188

West Palm Beach, FL 33402-3188

EXAMINER

NGUYEN, STEVEN H D

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

8

<b>Office Action Summary</b>	<b>Application No.</b> 10/036,870	<b>Applicant(s)</b> SMALLCOMB, JOSEPH	
	<b>Examiner</b> Steven HD Nguyen	<b>Art Unit</b> 2616	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 May 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-10 and 12-15 is/are rejected.
- 7) ☒ Claim(s) 3 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I in the reply filed on 5/4/06 is acknowledged. The traversal is on the ground(s) that the applicant amends the limitation of claim 1 into Groups II and III. Therefore, the examiner rejoins the groups. However, the examiner reserves the right to make a restriction of these groups if the amended limitation deleted from the group (See MPEP 1.142(a) states that a restriction may be made at any time before final action).

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 6 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for detecting a negative ... narrowing a search ... and adjusting timing ..., does not reasonably provide enablement for detecting a negative phase ....; determining a timing offset. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. In the claims, the applicant discloses three steps of performing timing recovery wherein each step is performed in an alternated way by using or function (See claim 6). However, the specification does not disclose the following steps a) detecting a negative phase in an OFDM modulated signal, b) determining a timing ... multi-carrier modulation symbol and c) one of limitation of this step etc....

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4. Claim 7 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for detecting a negative ... and adjusting the symbol timing ..., does not reasonably provide enablement for detecting a negative phase ....; determining a timing offset. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. In the claims, the applicant discloses three steps of performing timing recovery wherein each step is performed in an alternated way by using or function (See claim 6). However, the specification does not disclose the following steps a) detecting a negative phase and c) adjusting the symbol timing based on.... the demodulator etc.....

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 4-10 and 12-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita (USP 5608764) in view of Karim (USP 6501810).

Regarding claims 1 and 6-8, Sugita discloses a method and system for determining a timing offset from calculating the Average Group delay over a set of OFDM symbols by using a phasor to estimate an average delay of multi-carrier modulation symbol (Fig 3, Ref 45-51 for determining a timing offset for using to adjust timing at the receiver by calculating timing offset from average group delay using a phasor, Fig 4); feeding back the timing offset to a

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demodulator (Fig 3, 23-30 and 52 and 25 “demodulator” are received a feedback signal from Ref 51 and 49); and adjusting the symbol timing based on the Average Group Delay fed back to the demodulator (Fig 3, Refs 25 and 52 adjust timing for demodulator). However, Sugita fails to disclose detecting a lack of sync symbol. In the same field of endeavor, Karim discloses detecting a lack of a synchronization symbol (Col. 2, lines 3-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for detecting a lack of synchronization symbol as disclosed by Karim into Sugita’s system and method. The motivation would have been to provide an accurate synchronization demodulator receiver.

Regarding claims 2 and 9-10, Sugita discloses determining the phase offset directly from the OFDM symbols using a discriminator in a feedback loop (Fig 3).

Regarding claims 4 and 12, Sugita discloses adjusting the symbol timing toward a target phase rotation (Fig 3 used to adjust the Ref 25 and 25 toward a target phase rotation).

Regarding claims 5 and 13, Sugita discloses maintaining symbol synchronization without ever detecting the synchronization symbol and only using phase offset (inherently disclose because it does not using sync symbol to synchronize and using phase different for synchronizing).

7. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita and Karim as applied to claims 1 and 8 above, and further in view of Taura (USP 6434205).

Sugita and Karim fails to disclose the claimed invention. however, in the same field of endeavor, Taura discloses the angle of the phase is directly proportional to the timing offset (Col. 5, lines 24-30).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply the angle of the phase is directly proportional to the timing offset as disclosed by Taura into the teaching of Sugita and Karim. The motivation would have been to provide an accurate synchronized demodulator receiver.

***Allowable Subject Matter***

8. Claims 3 and 11 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Steven HD Nguyen', with a stylized, overlapping loop structure.

Steven HD Nguyen  
Primary Examiner  
Art Unit 2616  
July 28, 2006